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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,986	03/12/2001	Yukio Michishita	00USFP606	6963

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EXAMINER

TRAN, DZUNG D

ART UNIT PAPER NUMBER

2638

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/802,986

Applicant(s)

MICHISHITA, YUKIO

Examiner

Dzung D. Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-25 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 24 and 25 recites the limitation "said first plurality and second plurality of dispersion compensators" in lines 1-2 of claims. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhou et al. U.S. Patent no. 6,445,850.

Regarding claim 1, Zhou discloses in figure 2a, a band splitter 204 (equivalent to light branching apparatus), comprising:

an optical splitter 204 which splits an optical signal for a plurality of channels (col. 6, lines 55-56) on a first optical fiber (201) into at least a first optical channel signal

on a first channel ( $\lambda_{\text{Band1.1}}$ ) of a second optical fiber (205.1) and a plurality of second optical channel signals on a plurality of second channels ( $\lambda_{\text{Band2.1}}$ , . . .  $\lambda_{\text{Band2.J}}$ ) of the third optical fiber (205.2 ); and

a first wavelength dispersion compensator (206.1) on the second optical fiber (205.1) which is provided for said first channel ( $\lambda_{\text{Band1.1}}$ ) and compensates wavelength dispersion of said first optical channel signal ( $\lambda_{\text{Band1.1}}$ ) due to the optical splitter 204.

Regarding claim 2, Zhou discloses in figure 2a, a second wavelength dispersion compensator (206.2) which is provided for said plurality of second channels ( $\lambda_{\text{Band2.1}}$ , . . .  $\lambda_{\text{Band2.J}}$ ) and compensates wavelength dispersion of said plurality of second optical channel signals ( $\lambda_{\text{Band2.1}}$ , . . .  $\lambda_{\text{Band2.J}}$ ) due to the optical splitter 204.

Regarding claims 3, 4 and 8, Zhou discloses in figure 2a, a first wavelength dispersion compensator (206.1) on the second optical fiber (205.1), which is provided for compensating wavelength dispersion of said first optical channel signal ( $\lambda_{\text{Band1.1}}$ ) due to the optical splitter 204 and due to said second optical fiber (205.1).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5-7 and 9-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhou et al. U.S. Patent no. 6,445,850 in view of Prior Art figure 1.

Regarding claim 9, as per claim 1 above, Zhou discloses all the limitations, except for a first optical fiber connected to a first station; a second optical fiber connected to a second Station; a third optical fiber connected to a third station. Prior art, in figure 1 discloses a WDM system that include optical brancher 13, having a first optical fiber connected to a first station 11; a second optical fiber connected to a second Station 12; a third optical fiber connected to a third station 14. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the terminal stations taught by prior art in the system of Zhou. One of ordinary skill in the art would have been motivated to do this in order for properly distribute the optical signals to end users.

Regarding claim 10, Zhou discloses in figure 2a, a second wavelength dispersion compensator (206.2) which is provided for said plurality of second channels ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ) and compensates wavelength dispersion of said plurality of second optical channel signals ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ) due to the optical splitter 204.

Regarding claims 5 and 13, as per claim 1 above, Zhou discloses all the limitations, except for optical switch which switches a channel from one of said plurality of second channels to said first channel. Prior art discloses in figure 2, a light branching 13 that includes switch 13A for switching switches a channel from one of said plurality of second channels to said first channel (page 1, para. 0008). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include a

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light branching 13 that includes switch 13A taught by prior art in the system of Zhou.

One of ordinary skill in the art would have been motivated to do this in order to redirect the optical signal to a different path in case of fault (i.e., fiber cut). Thus it improves system reliability.

Regarding claims 6 and 14, as per claim 1 above, Zhou discloses all the limitations, except for third wavelength dispersion compensator) for compensating wavelength dispersion of first optical channel signal due to second fiber. Prior art discloses equalizing fiber 21 (equivalent to third wavelength dispersion compensator) for compensating wavelength dispersion of first optical channel signal due to second fiber (page 1, para. 0010). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the equalizing fiber taught by prior art in the system of Otani and Bergano. One of ordinary skill in the art would have been motivated to do this in order to compensate wavelength dispersion of optical signal, thus it reduces signal interference and improve the signal bit error rate.

Regarding claims 7 and 15, as per claim 1 above, Zhou discloses all the limitations, except for fourth wavelength dispersion compensator for compensating wavelength dispersion of third optical channel signal due to second fiber. Prior art discloses equalizing fiber 22 (equivalent to fourth wavelength dispersion compensator) for compensating wavelength dispersion of third optical channel signal due to second fiber (page 1, para. 0010 of specification). At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the equalizing fiber taught by prior art in the system of Otani and Bergano. One of ordinary skill in the

art would have been motivated to do this in order to compensate wavelength dispersion of optical signal, thus it reduces signal interference and improve the signal bit error rate.

Regarding claims 11, 12 and 16, Zhou discloses in figure 2a, a first wavelength dispersion compensator (206.1) on the second optical fiber (205.1), which is provided for compensating wavelength dispersion of said first optical channel signal ( $\lambda_{\text{Band1.1}}$ ) due to the optical splitter 204 and due to said second optical fiber (205.1).

Regarding claims 17, 18 and 21, as per claim 1 above, Zhou disclose all the limitations, except for an optical switch which switches a transmission channel of a first optical channel signal on a first optical fiber from a first channel on a second optical fiber to a second channel on a third optical fiber. Prior art figure 2 discloses a light branching apparatus 13 comprising: an optical switch 13A which switches a transmission channel of a first optical channel signal on a first optical fiber from a first channel on a second optical fiber to a second channel on a third optical fiber. Since the switch is well known in the art for redirect the optical signal in the system, therefore it would have been obvious to an artisan at the time of the invention was made to include the optical switch taught by the prior art in the system of Zhou. One of ordinary skill in the art would have been motivated to do this in order to recovery operation performed of the optical system in case of fault occurs on the transmission path or a failure of break of the transmission path and improve the reliable of the optical system (page 1, para. 0008 of specification).

Regarding claim 19, Zhou discloses in figure 2a, a second wavelength dispersion compensator (206.2) which is provided for said plurality of second channels ( $(\lambda_{\text{Band2.1}}, \dots)$

$\lambda_{\text{Band2.J}}$ ) and compensates wavelength dispersion of said plurality of second optical channel signals ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ) due to the optical splitter 204.

Regarding claim 20, Zhou discloses in figure 2a, a first wavelength dispersion compensator (206.1) on the second optical fiber (205.1), which is provided for compensating wavelength dispersion of said first optical channel signal ( $\lambda_{\text{Band1.1}}$ ) due to the optical splitter 204 and due to said second optical fiber (205.1).

Regarding claim 22, Zhou discloses in figure 2a, a first wavelength dispersion compensator (206.1), which compensate dispersion for plurality of channel signals correspond respectively to a plurality of branch paths (e.g., separated by de-multiplexer 212.1) which are separated for a plurality of wavelength range ( $(\lambda_{\text{Band1.1}}, \dots, \lambda_{\text{Band1.I}})$ ).

Regarding claim 23, Zhou discloses in figure 2a, a second wavelength dispersion compensator (206.2) which is provided for said plurality of second channels ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ) and compensates wavelength dispersion of said plurality of second optical channel signals ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ) due to the optical splitter 204, which compensate dispersion for plurality of channel signals correspond respectively to a plurality of branch paths (e.g., separated by de-multiplexer 212.2) which are separated for a plurality of wavelength range ( $(\lambda_{\text{Band2.1}}, \dots, \lambda_{\text{Band2.J}})$ ).

Regarding claims 24 and 25, as far as examiner understood, Zhou discloses in figure 2a, a first wavelength dispersion compensator (206.1) and a second wavelength dispersion compensator (206.2) compensate a wavelength dispersion for all wavelength ranges of optical signal for plurality of channel of band 1 and 2 (see figure 2a).



***Response to Arguments***

7. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic



Dzung Tran

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